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ABSTRACT

This collection of teaching activities provides guidance in using the resources of the school yard to integrate environmental education with other subject areas. Provided with each activity are: (1) recommended grade level; (2) subject areas integrated into the activity; (3) objectives; (4) rationale; (5) equipment needs; (6) specific activities; and (7) additional, optional activities. (RE)

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ED173115

OUR SCHOOL YARD SERIES

PROJECT I-C-E

SE 027 930

PROJECT I-C-E
INSTRUCTION-CURRICULUM-ENVIRONMENT
1927 Main Street
Green Bay, Wisconsin 54301

Environmental Activity Model: OUR SCHOOL YARD I - OUR OUTER SPACE

Recommended Grades: 4-8 Seasons: All seasons

Author: Robert Warpinski

Concepts:
2. Ecosystem
7. Land Use
9. Change
12. Stewardship

Integrated with:
Mathematics
Language Arts
Social Studies

Objective(s):
Using appropriate units of measure, students will plot on the graph the size of the school yard, locate building(s) and other landscape features, and make qualitative judgments on appearance as well as suggest improvements.

Rationale/Directions:

Students can learn math and language skills in their immediate environment, the school yard. We start by looking at the whole picture, and make some judgments on the overall quality of this physical learning environment. The teacher and class need to pre-determine the approximate scale to be used so that graph plotting will be in relative proportion to actual size. Measuring devices of whatever choice, U. S. standard or metric, need be available. The additional skill of conversion may also be taught. Students may be organized into teams of three.

ACTIVITIES:

1. Considering the size of the school yard and the building(s) determine an approximate scale in order to plot the yard and buildings on the graph paper:

   a) _____ actual feet will equal scale of _____ inches.

   b) _____ actual meters will equal scale of _____ millimeters.

2. Using a U. S. standard or metric tape measure or pre-measured string knotted for yards or meters:

   a) Measure and plot the boundaries of the school yard on the graph.

   b) Measure and locate on the graph the school building(s).

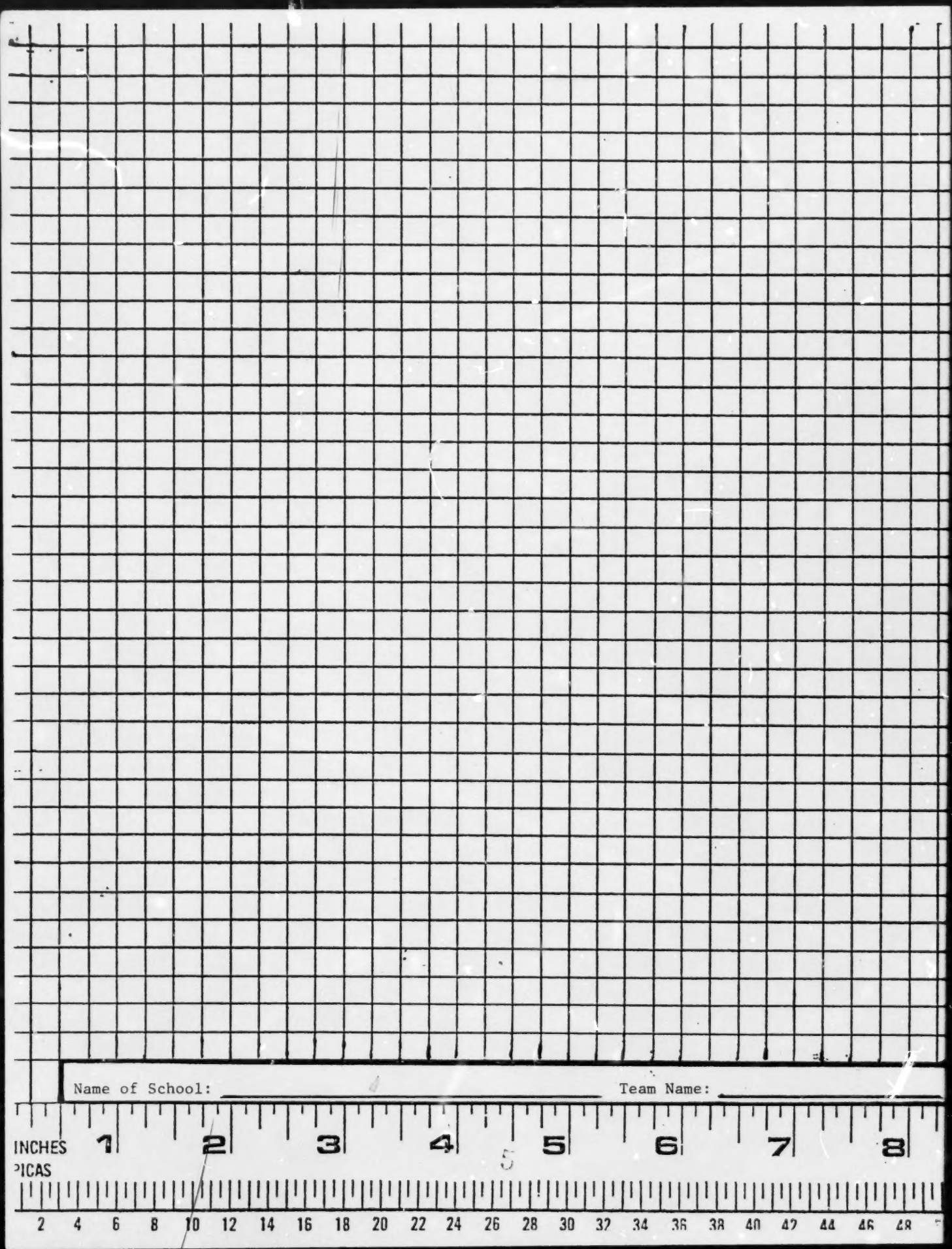
   c) Identify and locate approximately other major features found in the school yard: ie. trees, bushes, play equipment, drives, sidewalks, etc.

3. In a short paragraph, tell if and why the school yard and buildings are attractive or unattractive surroundings:

4. What improvements could be made to the school yard and buildings that would make them a better place for learning? You may write this in a short paragraph, make a list, and/or note them on your graph plot using a different colored pen or pencil.

References and Resources:

Site Development and School, part 1, Minnesota Environmental Science Foundation, 1974, ICE RMC.
Environmental Enrichment - What You Can Do About It, Centron Educational Films, 1972, color, film, 21 min., ICE RMC.
Outdoor Classrooms on School Sites, USDA, Soil Conservation Service, 1972, ICE RMC.


Name of School:
Team Name:
INCHES 1 2 3 4 5 6 7 8
PICAS
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

PROJECT I-C-E
INSTRUCTION-CURRICULUM-ENVIRONMENT
1927 Main Street
Green Bay, Wisconsin 54301

Environmental Activity Model: OUR SCHOOL YARD II: SECRETS IN THE ASPHALT/CEMENT

Recommended Grades: 3-6 Seasons: All seasons

Author: Robert Warpinski

Concepts:
12. Stewardship
11. Individual Acts
7. Land Use

Integrated with:
Mathematics
Language Arts
Social Studies
Health

Objective(s):
Through the activities scheduled, students will learn skills of correctly measuring a plot and weighing and analyzing the residue found in such a plot, and make conclusions on safety or health hazards that such present, as well as offer suggestions for improving conditions of the school yard.

Rationale/Directions:

As everything else, the school yard, even if asphalt or cement, is a part of our environment, and may be used to teach many skills. Besides measuring, weighing and analyzing, the more important tasks of relating to questions of health or safety and improvements possible make such activities meaningful and worthwhile.

Equipment:

Besides organizing class into working teams of 2-3 youngsters, the equipment needs are:

1. a measuring device (U. S. standard or metric).
2. a broom, dust pan or cardboard.
3. a scale; small household scale will do.
4. several pieces of paper or cardboard to separate the sweepings into groupings as outlined.

ACTIVITIES:

1. Have each investigating team mark off a square yard (3 ft. x 3 ft. space) (or use a square meter space).

2. Carefully and as cleanly as possible sweep the space up, getting all the sweepings into a dust pan or a piece of cardboard or paper.

3. Conduct the following analysis of the sweepings:

   a. If a scale is available, weigh the matter and record the weight

      here: _____ ounces or _____ grams

   b. Pick out all larger particles and matter from the sand, dust or silt; weigh each group again:

      1) Weight of sand, etc. _____ ounces or _____ grams

      2) Weight of particles, etc. _____ ounces or _____ grams

   c. Of the larger particles, separate the natural materials from those which may have been in any way processed by people. A piece of paper, glass or metal, for example, has been "processed". Record the

      weight of such processed matter: _____ ounces or _____ grams

4. In a statement of two, make conclusions on the following:

   a. How did the dust, sand or silt accumulate on the asphalt?

   b. How did the gravel or other larger natural matter get into your square?

   c. How did such "processed" matter as paper, glass, or metal come to be in your square?

5. What kind of health or safety problems does such matter (all your sweepings) pose in a school yard? Explain.

6. What could be done to improve such conditions in the play yard? List and explain each suggestion.

Additional activities could include:

1. Conversions from U. S. standard to metric or visa versa.

2. Projections that if one square (yard/meter) held so much total sweepings, how much would there be in the entire asphalt or cement surface of the school yard.

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INSTRUCTION-CURRICULUM-ENVIRONMENT
1927 Main Street
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Environmental Activity Model: OUR SCHOOL YARD III: SUPER SNOOPERS OF SCOTLAND YARD

Recommended Grades: 2-3 Seasons: Fall/Spring

Author: Robert Warpinski

Concepts:
8. Attitudes and Values
9. Change
10. Stewardship

Integrated with:
Social Studies
Language Arts

Objective(s):
Students will increase their skills of observation, recording, analysis and judgment by using the school yard environment per directions given and the simple notations required on the chart.

Rationale/Directions:

In this activity, we will be looking for damage or abuse of our school yard environment, either by ourselves or outsiders. Some things we will be able to see quickly, others we will have to look for closely. And maybe we won't find any at all, and we can call ourselves lucky to have such a nice school yard! But when we did find signs of damage or abuse, we will try to describe it, decide who is responsible and suggest what can be done about it.

Organize the students in teams of three or four, designating one as the recorder and the others as investigators. Place each team in a different part of the school yard for a starting position, from which point the investigation begins and to which point each team should return upon completion.

The following are things to look for which may be found in and around the school yard. If some of these things are not to be found in our school yard, simply cross out or skip the item. There is more space for other things that may not be included in the list.

ACTIVITY SHEET

THINGS TO LOOK FOR	YES/HOW MANY OR NO	WHO DO YOU THINK DID IT?	HOW TO PREVENT IT
1. Are there trees with broken branches?			
2. Are there broken windows in the school building?			
3. Are there flower beds that have been stepped in/walked over?			
4. Are there swings, slides, other play things that are broken?			
5. Are there lawn areas with foot-paths made instead of using sidewalks?			
6. Are there bushes or shrubs that have been damaged?			

THINGS TO LOOK FOR	YES/HOW MANY OR NO	WHO DO YOU THINK DID IT?	HOW TO PREVENT IT
7. Are there fences that have holes or are broken?			
8. Are there track marks on lawns from cars or bicycles or other things?			
9. Are there big cracks or holes in concrete or asphalt walks, drives or play yard?			
10. Are there any other things not listed? a) _____ _____ _____ b) _____ _____ _____			

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INSTRUCTION-CURRICULUM-ENVIRONMENT
1927 Main Street
Green Bay, Wisconsin 54301

Environmental Activity Model: OUR SCHOOL YARD IV: HAPPY HIPPETY HOPPERS

Recommended Grades: K-1 Seasons: All seasons

Author: Robert Warpinski

Concepts:
3. Capacity
7. Land Use
11. Individual Acts

Integrated with:
Math
Physical Education
Social Studies

Objective(s):
Through the activity steps outlined, children will conclude that a restricted space will accommodate a given number of people relating this to Planet Earth and population limits.

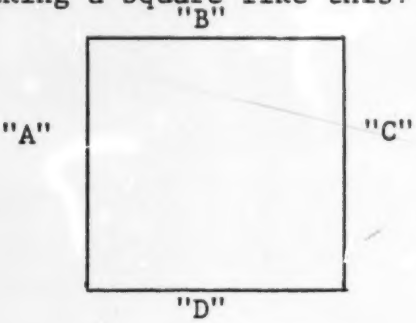
Rationale/Directions:

We can use the outdoor school yard in a fun game situation to learn simple mathematics while developing at the same time the environmental concept of carrying capacity that allows people to move and act freely in a prescribed situation. The important thing is to develop the relationship of what happens on Planet Earth when people are overcrowded. Example: If Planet Earth were as overcrowded as the square, would there be space for people to enjoy themselves or to grow food, if that's all the space there was?

Some string, approximately 100 feet, and a measuring tool--yardstick or meter, should be available, as well as something to write on and with. Depending on the size of the class, the size of the square made may have to vary. Modify the number of paces stepped off accordingly.

ACTIVITIES:

1. In the school yard, select the tallest child from your class and have the child take ten (10) steps in each direction, making a square like this:



Have a child stand it each corner and hold a string to make the sides.

2. Measure each side of the square, along the string on the ground. (Use a yard or meter stick.)

   a. How long is side "A"? _____

   b. How long is side "B"? _____

   c. How long is side "C"? _____

   d. How long is side "D"? _____

   What do you need to make a square? _____

   Is each side as long as the other ones? _____

3. Leave the string on the ground, forming the square. All the children now step into the square. Does the square hold all children in the class?

   How many children are in the square? _____

4. From a paper bag that has each child's name on a slip of paper, draw out a child's name asking that child to make at least three (3) hops without bumping another child, while staying within the square. Each hop must be at least two (2) feet long in a different direction and the other children may not move once stationed in the square. If the child called bumps into another child, the hopping child must leave the square.

5. The first child leaving the square may act as the counter. Have that child tally a mark for each successive child who has to leave the square because of hopping into another child.

   Make the tally marks here, including that of the first child:

   _____

6. The second child having to leave the square may now act as the drawer of names from the paper bag. This continues until one child can hop three hops, each in a different direction, without bumping into another child. When this happened:

   How many children had to leave the square? _____

   How many children were left standing in the square? _____

7* Have all the children remaining within the square hippety hop as before, all at the same time. If they bump into another child, ask them to leave the square also.

   How many more had to leave the square? _____

8. How many hippety hoppers could hop happily in the square?

   _____

9. If Planet Earth was the size of this square, what would this mean to the children? Discuss.

10.* If the Children would plan carefully the direction of their hops, how many more children could hippetyhop without bumping into each other? How does this relate to people living on Planet Earth?

PROJECT I-C-E
INSTRUCTION-CURRICULUM-ENVIRONMENT
1927 Main Street
Green Bay, Wisconsin 54301

Environmental Activity Model: OUR SCHOOL YARD V: THE BLOCKS WILL TELL

Recommended Grades: K-1 Seasons: Spring/Fall

Author: Robert Warpinski

Concepts:
2. Ecosystem
6. Resources
8. Attitudes and Values

Integrated with:
Language Arts
Science
Social Studies
Art

Objective(s):
By following directions, children will identify common things in the school yard, print and spell correctly the words for the names of such things to spell the word "NATURE" in the dark lined blocks on the worksheet.

Rationale/Directions:

A little different activity to introduce children early to simple observation and recording skills that uses the outdoors for a classroom while at the same time teaching language skills is very beneficial. With the activity sheets, the students will need a pencil and something with a hard surface to write on. Anything will do; a piece of cardboard or a workbook. Keep the class as one group as you need to read the items and lead the group to different places around the school yard. The children should actually have seen the thing called for in each name before they print it out.

Children should have only the activity sheets.

ACTIVITIES:

1. Stand quietly someplace around the school building or near some trees. Look carefully. Do you see an animal with feathers anywhere? What kind of animal is this? Print the name of that animal here:

_____ _____ _____ _____

Then print the name in the blocks with the number "5", in them, starting with the top block and go down.

2. In the school yard, do you see a tall growing plant? It has branches. In the spring, summer and fall it is green with leaves. Some are green even in winter. What is the name of this kind of plant? Print the name here:

_____ _____ _____ _____

Then print this name in the blocks with the number "6" in them, again starting with the top block and go down.

3. Does your school yard have places that look like a green carpet? Sometimes the janitor cuts this with a lawnmower. What grows here to make such a nice green carpet? Print the name here:

_____ _____ _____ _____ _____

Then print this word in the blocks with the number "2" in them. Start with the top block and go down.

4. Go to the place where you play. Look around for a place where nothing grows. Can you find a place where the ground is almost white, and if you take a handful, it runs through your fingers? What do you call this kind of ground? Print the name here:

_____ _____ _____ _____

Then print the letters in the blocks with the number "1" in them, again start with the top block and go down.

5. You may find it hard to see these little animals. Look around the school building where the ground is bare or in cracks in the sidewalk or driveway. If you find them, there usually are many of them, and they are busy little animals. Do you see any? What is this little animal called? Print the name here:

_____ _____ _____

Then print this word in the blocks with the number "3", from top to bottom.

6. Look around the school building or in the school yard. Do you see any smaller, lower plants? Some may be green all the time; some are green with leaves only from spring to fall; some may have flowers or berries. What is the name of a plant like this? Print the name here:

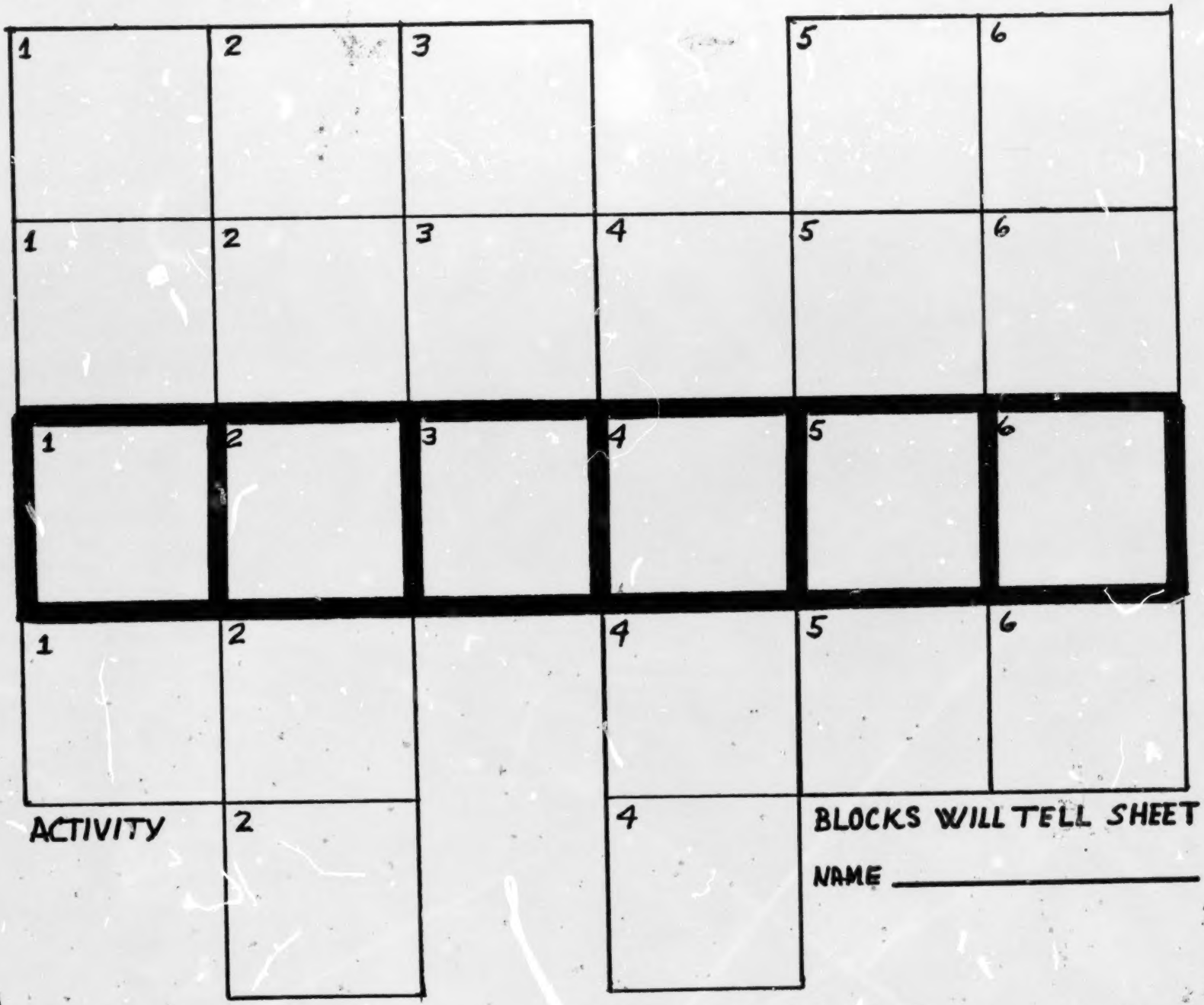
_____ _____ _____ _____

Then print this word in the blocks with the number "4", again start with the top block and go down.

7. If you found all these things in your school yard, and you have the correct name for each one printed in the blocks with the right numbers, what word do the blocks with the dark lines spell? Print that word here:

Can you tell the class what this word means?

8. (Optional) For a bulletin board display, have the children draw small pictures in the right blocks of each thing named.


1
2
3
5
6
1
2
3
4
5
6
1
2
3
4
5
6
1
2
4
5
6
ACTIVITY
2
4
BLOCKS WILL TELL SHEET
NAME

PROJECT I-C-E
INSTRUCTION-CURRICULUM-ENVIRONMENT
1927 Main Street
Green Bay, Wisconsin 54301

Environmental Activity Model: OUR SCHOOL YARD VI: THE TISSUE TELLS THE TALE

Recommended Grades: 5-6 Seasons: All seasons

Author: Robert Warpinski

Concepts:
5. Air
9. Change

Integrated with:
Science
Social Studies

Objective(s):
Through the directions given, students will make a simple air quality monitoring device and by making comparisons and recording data under different conditions, will show such variations on the chart.

Rationale/Directions:

A readily constructed inexpensive device is used to introduce students to simple monitoring of air quality in the school yard. This activity could be repeated periodically during the school year. The directions for the activity and the material needs are outlined in the different activity steps.

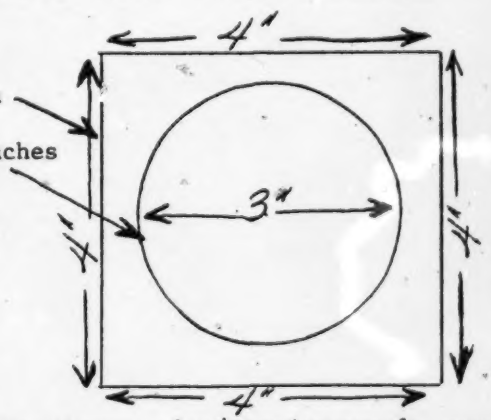
ACTIVITIES:

1. Have the students in the class make a cardboard frame to which they glue the single ply of a 4" x 4" piece of toilet or facial tissue.

   a) Cardboard frame

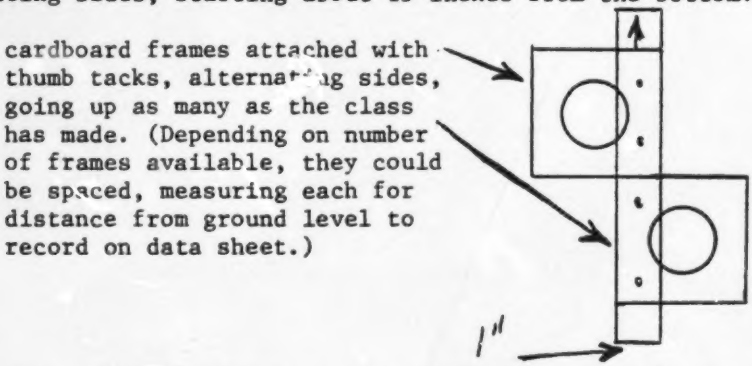
      4 inch square, outside dimension

      Center, and cut out a hole, 3 inches in diameter.



   b) Using a single ply piec of toilet tissue, glue/paste securely over the hole to the cardboard frame.

2. Obtain a long board (1" x 2" x 6' or 8'); some soft wood like pine. Using thumb tacks, secure the tissue holding cardboard frames to one edge of the board, alternating sides, starting about 15 inches from the bottom:


cardboard frames attached with thumb tacks, alternating sides, going up as many as the class has made. (Depending on number of frames available, they could be spaced, measuring each for distance from ground level to record on data sheet.)
1"

3. Locate an open space in the school yard where it would be possible to place the device upright by driving the bottom into the ground, about 10 inches; or you might have to dig a hole, place the device and fill back the soil and tamp securely. Decide beforehand what the prevailing winds are (NE Wisconsin - westerly, north, or southwesterly) and face the frames into such winds.

4. Different types of observation can now be made using the sheets to record the information.

   a. Leave the air monitor device in place for one school day. Remove the cardboard frames and bring in to study in class the next day. Mark each frame in succession, starting with the one closest to the ground so that you may note any difference in particulate matter as the frames are higher above the ground.

   b. Place the air monitor device after school, and leave out until the following morning. Mark and remove the frames for study as "a" above.

   c. Leave the air monitor device in place for a full day, 24 hours, and make a comparative study.

   d. The frame comparisons can be made by sight alone, with a hand lens (magnifying glass) or a microscope, if the latter is available. (In working with the frames, handle carefully so as not to shake off any dust or particulate matter.)

   e. Record data and description starting with frame #1 at bottom and indicate measured height above ground level for each.

   f. After examination, a representative sample portion of tissue from each frame may be cut out and taped to data sheet in space so provided.

OBSERVATION RECORD SHEET Name _____

Frame	Tissue Sample	Written description of tissue appearance
No. ___ Height _____		
No. ___ Height _____		
No. ___ Height _____		
No. ___ Height _____		
No. ___ Height _____		
No. ___ Height _____		
No. ___ Height _____		
No. ___ Height _____		

OBSERVATION TYPE (circle) School Day Overnight One Day, 24 hours

ANALYSIS TYPE (circle) Visual Only Hand Lens Microscope

Number of Frames _____ Time of Year _____ Wind Direction _____
(use additional sheets if necessary, but keep the frames in order.)

PROJECT I-C-E
INSTRUCTION-CURRICULUM-ENVIRONMENT
1927 Main Street
Green Bay, Wisconsin 54301

Environmental Activity Model: OUR SCHOOL YARD VII: PICTURES TELL A BETTER STORY

Recommended Grades: 4-6 Seasons: All

Author: Robert Warpinski

Concepts:
2. Ecosystem
9. Change
11. Individual Acts
12. Stewardship

Integrated with:
Language Arts
Art
Social Studies

Objective(s):
Upon selecting a school yard topic, students will decide kinds of areas they want to show in pictures; take such pictures and write a narrative for each to present to class or develop into a display.

Rationale/Directions:

This activity enhances group cooperation and decision-making, requiring thoughtful application in order to best show their selected yard theme. It causes students to be observant of areas in order to best illustrate their theme and develop skills in photography and language and can be done at any time or over a period of time, if necessary.

READ THROUGH THE ENTIRE ACTIVITY DIRECTIONS BEFORE YOU START.

OUR SCHOOL YARD VII: PICTURES TELL A BETTER STORY

Activity Sheet

Direction/Activity:

1. Before going outside as a team, decide what you want to show others about your school yard. You can select such as: what is nice about it, what is bad about it, or show areas that could be improved. Make a list of at least three (3) places where you will take pictures to show the message you want to portray. List them here:

   a) _____

   b) _____

   c) _____

2. Since pictures are expensive, you have to be selective in what you take and how many you take. There are different kinds of cameras you can use and different kinds of film. The quickest way to do this is to use an instant type camera like a Polaroid (Kodak also has a similar camera) that develops the picture immediately. Other cameras can be used that have roll film, 8, 12, or 20 exposure, color or black and white, and either prints or slides, depending on the film used. But for these you have to wait to get the pictures developed. When you are ready and know how to use the camera, have each member of the team take one or several pictures of the places you selected. Some quick hints:

   a) Hold the camera steady when taking a picture.

   b) Get as close to the picture-subject as you can and still get all you want to show on the picture.

   c) Have the sun behind you or to the side; never take pictures into the sun!

3. Once you have the pictures taken, write a description for each. This is called a narrative to tell your story about each place you selected and the pictures you took. Your story (narrative) should tell why you choose to show what you did, what's good, bad, or can be improved, and what it means to your school yard. You have to tell your story completely, but in as few words as possible. And you can mount your pictures on cardboard, and print out your narrative by each picture for a display. Try to come up with a good title for your presentation. (If your pictures are in slides, you may show them to the class with a slide projector and give your narration for each picture.)

Narration (your story)

Title: _____

Place "a": NARRATIVE

Picture #1 _____

Picture #2 _____

Place "b":

Picture #1 _____

Picture #2 _____

Place "c":

Picture #1 _____

Picture #2 _____

PROJECT I-C-E
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Green Bay, Wisconsin 54301

Environmental Activity Model: SCHOOL YARD VIII: FROG STATION FROLICS

Recommended Grades: 4-6 Seasons: Any

Author: Robert Warpinski

Concepts:
2. Ecosystem
11. Individual Acts

Integrated with:
Language Arts
Mathematics
Physical Education

Objective(s)

From a set of clues, students will correctly determine selected letters, mathematically compute a given number as directed, and position themselves at a numbered predetermined spot to spell out a word significant to ecological understanding.

Directions/Activities:

For a change of pace, use the outdoor school yard in a combination language, math and physical education class. Students will learn some words, do math, and get some exercise in a fun learning experience with a little competition added. If class is too small, combine or do with just one class team.

Directions: (For the teacher only, show students only the clue slips.)

1. Form a class or group that consists of two (2) teams of 11 members each. In addition, there should be two "starters" for each team, preferably the teacher and an aide or other adult. When outside, each starter should have a broad tip felt marker and some surface suitable for writing on.

2. Before going outside, prepare 11 sheets (8 1/2 x 11) of paper, boldly marking a number on each from 1 to 11. Also provide some objects or pins to hold the paper down on the ground.

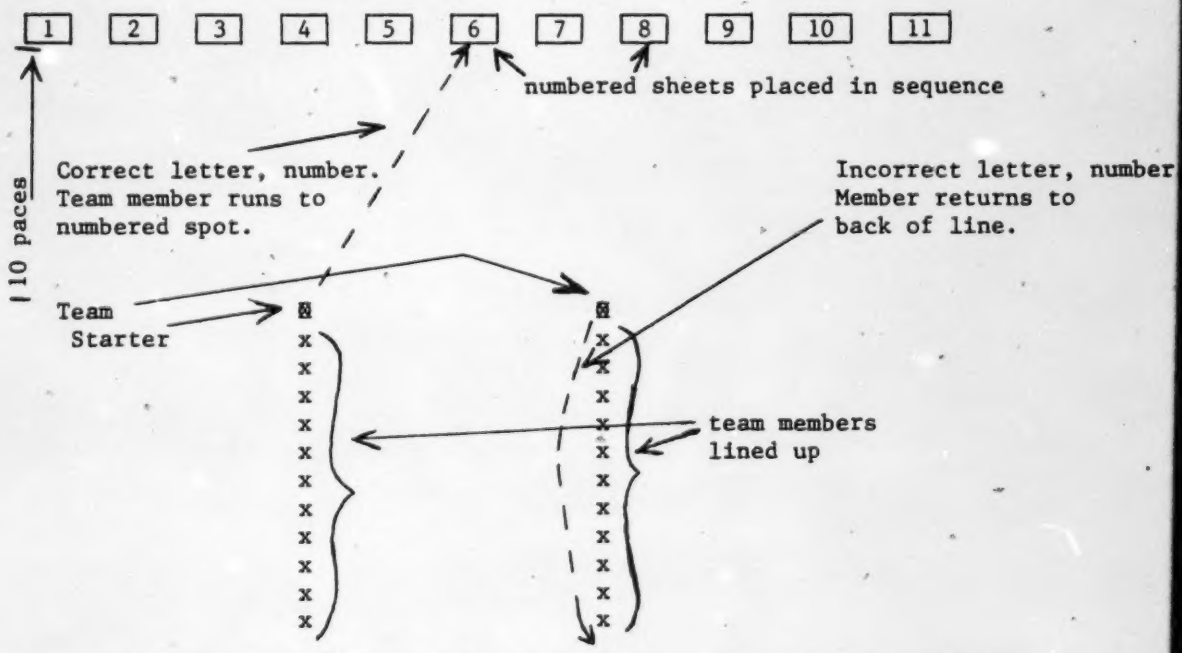
3. With the group outside, position each team member, one behind the other in a line facing each team starter. From this team positioning, walk off 10 paces, and there in a transectional line place the numbered sheets of paper on the ground, about a pace apart, placing the numbered sheets in succession from 1 to 11. Also give each team member an 8 1/2 x 11 blank sheet of paper.

4. Randomly select the clue slips for each team, giving one to first person in team line, with both teams starting at the same time.

5. If the team member correctly identifies the letter called for and performs the math problem to arrive at the proper number, he uses the blank sheet of paper to boldly print that letter, and then races with that letter to the spot with the corresponding number previously placed on the ground, not showing the letter to anyone.

   <u>If a team member cannot identify the letter or perform the math, that member must go to the back of the line to await another turn</u>.

   The following illustrates the setup as described above:



6. The team that first positions a member on all the numbered spots is the winner, and when they hold up their letters, it should spell out the word: ENVIRONMENT.

7. The following clue slips need be duplicated so that each team has a set--and you're ready to go. Maybe it will be fun!

8. Variations might be to have children race to numbered spots on all fours such as imitating a hopping frog or other animal. Starter must wait with next clue until the child reaches the correct numbered spot.

LETTER CLUE #1

The first letter of the name of a large animal normally found in Africa or Southeast Asia. What is the name?

_____

The first letter is: _____

Divide the number of letters in this word by 2, add 5 =

_____

LETTER CLUE #2

The first letter of the word (name) that makes everything go and grow in this world. What is this word?

_____

What is the first letter? _____

Subtract 5 from the number of letters in this word; the number left is: _____

LETTER CLUE #3

First and last letter in the name for larger bodies of flowing water. The name is: ____ _____

The letter is? _____

Add zero (0) to the number of letters in the word; your number is? _____

LETTER CLUE #4

One of two similar middle letters for the name of a season of the year. The name is? _____

The letter is? _____

Subtract 2 from the number of letters in the word; add 4; your number is? _____

LETTER CLUE #5

Last letter of the name for the main energy source for earth. The name is? _____

The last letter is? _____

Multiply the number of letters in this name by 2 and add 1; your number is? _____

LETTER CLUE #6

First letter of the name of a species (kind) of very small animals. The word is? _____

The first letter is? _____

Divide the number of letters in this word by 2; add 1; your number is? _____

LETTER CLUE #7

First letter of the name for a simple weather instrument that shows wind direction. The word is?

_____

The first letter is? _____

Multiply the number of letters in this word by 3; subtract 9; your number is? _____

LETTER CLUE #8

One of two similar middle letters for the name given to things just dropped or thrown around on the landscape.

The name is? _____

The letter is? _____

Add 5 to the number of letters in this name. Your number is? _____

LETTER CLUE #9

Last letter of the name for a common farm animal that lays eggs. The name is? _____

The last letter is? _____

Divide the number of letters in this word by 3, add 1; the number is: _____

LETTER CLUE #10

First letter for the name of a chemical element that the air we breathe supplies for the body. The name is?

_____

The letter is? _____

The number of letters in this name is?

_____

LETTER CLUE #11:

First letter for the general name of all such things as soil, plants, animals that we see around us. The name is? _____

The first letter is? _____

Multiply the number of letters in this word by 3; subtract 8, the number is? _____

PROJECT I-C-E
INSTRUCTION-CURRICULUM-ENVIRONMENT
1927 Main Street
Green Bay, Wisconsin 54301

Environmental Activity Model: SCHOOL YARD IX: WHO'S DRIVING WHO?

Recommended Grades: 5-12 Season: All

Author: Robert Warpinski

Concepts:
6. Resources
9. Change
11. Individual Acts
12. Stewardship

Integrated with:
Social Studies
Mathematics

Objectives:

Through the activity design, students will determine efficiency of car operation, and consider data to compute total miles driven and total fuel utilized and the annual cost per passenger for the cars in the school parking lot.

Rationale/Directions:

We are always quick to point a finger at others, or discuss problems, environmental and other, when such do not impact on us personally/directly. Energy, in this case gasoline, is an impending crisis. This survey may just impact on us and then--"What can I do to lower energy consumption?"--becomes a personal question.

Assign students to teams of two or three each, and have each team designated for Car No. 1, Car No. 2, etc., in sequence. Students then are directed to school parking lot, either staff or student, and they then randomly select automobiles, or do all that are in the parking lot. Once they have selected the automobile and recorded basic descriptive data for Item #1, they must identify the owner, either staff or student, and by interview, obtain the information for items 2 through 7. Once this information is available, students do the computations for items 8 and 9.

Item #10 can then be done as a class and discussion directed to costs and fuel conservation.

STUDENT WORKSHEET TEAM MEMBERS: _____ _____

_____

CAR NO: _____ _____

1. Make/Model: _____

Check one: Compact ____ Intermediate _____ Full Size _____

2. Number of cylinders: _____ 3. Engine Horsepower Rating: _____

4. Average Miles Per Gallon of Fuel: _____ 5. Average Fuel Cost (per gallon): _____

6. Average Round Trip Miles to Work: _____ 7. No. of Passengers: _____

8. Figure fuel cost for each round trip:

_____ ÷ _____ = _____ x _____ =
Round trip miles Miles per gallon (Gallons used) Cost per gallon

_____
Cost per round trip

9. Cost per passenger:

a) If one person travels, that daily cost is: _____

The cost per year is (190) x (cost _____) = _____

b) If more than one: (daily cost _____) ÷ (number of passengers _____) =

_____ cost per passenger.

The cost per year for each passenger is (190) x (daily cost _____) =

_____.

10. Additional activities:

a) Compare results for all cars surveyed by the class:

1) How many total miles driven each year by all cars surveyed? _____

2) How many gallons of fuel are used each year by cars surveyed? _____

3) What is the total cost per year to operate all the cars surveyed? _____

4) Which cars are more efficient (cost less to operate)? _____

b) How could gasoline fuel be conserved and money saved? Discuss.

PROJECT I-C-E
INSTRUCTION-CURRICULUM-ENVIRONMENT
1927 Main Street
Green Bay, Wisconsin 54301

Environmental Activity Model: OUR SCHOOL YARD X - INVENTORY/ANALYSIS FOR THE OUTDOOR CLASSROOM

Recommended Grades: 5-12 Seasons: Fall/Spring

Author: Robert Warpinski

Concepts:
All

Integrated with:
Social Studies
Mathematics
Art
Science
Language Arts
Industrial Arts
Agriculture

Objective(s):
Students (and teachers) will initiate school site analysis for potential use/development as an outdoor classroom by completing the site survey and analysis that is a part of this activity and may project a tentative plan for such site development.

Rationale/Directions:

Does our school yard reflect the concern we should have today for the environment? Take a look at the school yard through the window from different vantage points in the building. Is it a model of the kind of environment we should try to build and maintain? Could our school site become a more integral part of the educational program? No matter what the condition or circumstances, no matter if it is large or small, the site already exists. Since education is concerned with our relationship to the environment, why not look at the resources available underfoot, so to speak, and begin to plan to use them more effectively?

This activity design has long-range projections. The initial stage of obtaining basic site information may be accomplished by any level within the recommended grade range. The stages that follow may require utilization of various resources such as reference books and specialists that students may identify and/or invite in order to assist them.

STAGE I - Basic Information

A. Report prepared by: _____

B. Date Report Prepared: _____

C. School District: _____

D. School Name: _____

E. School Address: _____

_____

F. Basic Building Level Information:

1. Building serves grades: _____

2. Number of teachers in building: _____

3. Number of support staff: _____

4. Number of classrooms: _____

5. Number of students by grade: (as appropriate to specified building)

Kindergarten	_____	Grade Five	_____	Grade Nine	_____
Grade One	_____	Grade Six	_____	Grade Ten	_____
Grade Two	_____	Grade Seven	_____	Grade Eleven	_____
Grade Three	_____	Grade Eight	_____	Grade Twelve	_____
Grade Four	_____				

6. Basic building construction (ie. brick, block, concrete): _____

7. Type of heating/cooling system: _____

8. On the plan sheet attached, locate and outline basic building design.

G. School Site Information:

1. On the plan sheet, outline the school grounds.

2. Label the sides, and provide the dimensions for each:

Side "A"	_____	Side "__"	_____
Side "B"	_____	Side "__"	_____
Side "C"	_____	Side "__"	_____
Side "D"	_____	Side "__"	_____

3. Compute the site acreage: _____
(acre is approximately 209 feet square)

4. On the plan sheet, outline all other major site areas such as driveways, sidewalks, parking lots, lawns, landscape areas, play areas, athletic facilities, other special features and undeveloped or unused areas.

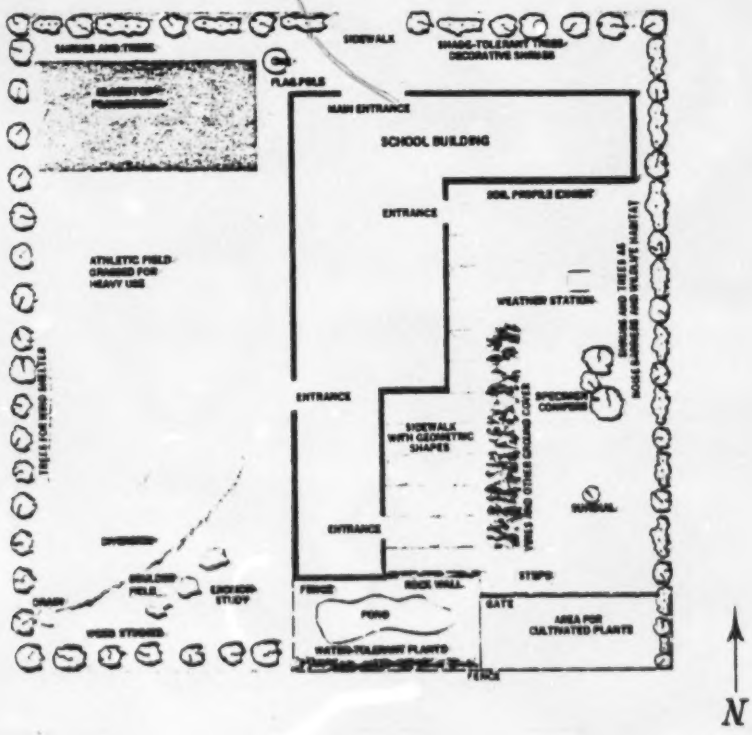
5. For each of the above areas figure the amount of site space used for each in square feet and the percentage of the total site this represents (may be estimated).

	Square Feet	Percentage
Driveways	_____	_____
Sidewalks	_____	_____
Parking Lots	_____	_____
Lawns	_____	_____
Landscape Areas	_____	_____
Play areas	_____	_____
Athletic facilities	_____	_____
Other special features	_____	_____
Unused/Undeveloped	_____	_____
Building	_____	_____
TOTAL	_____	100%

H. Basic Site Plan Sheet:

1. Pictured here is an example of a site outline and major features. On the plan sheet provided, outline and provide the site features as called for in "F. 8", "G. 1", and "G. 4".

Example:



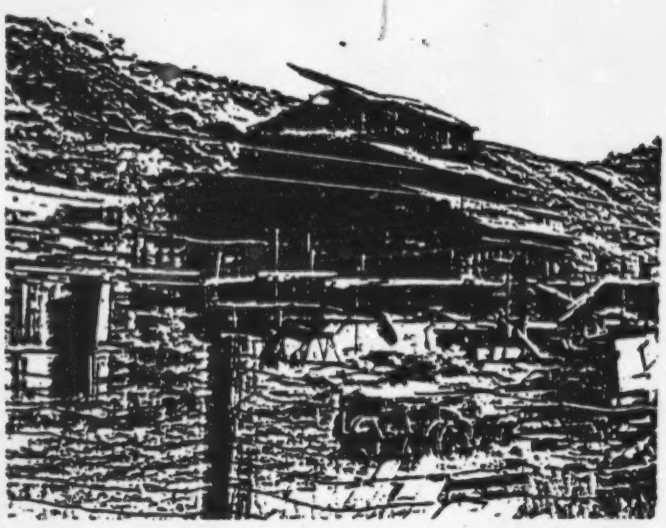
Credit: USDA Soil Conservation Service PA-975.

2. Using distinguishing colors, locate on the plan sheet and describe here your suggestions for immediate possible use of the site for different learning activities.

I. Site Historical Features and other Adjacent Areas:

1. Through local interviews or a record search what is the history of the site?

2. Describe any unusual historical features of the site.



3. Within a several block perimeter to the site, what other things are available that could be used for varied learning experiences?

NAME OF SCHOOL: _____ PREPARED BY: _____ DATE: _____

STAGE II - Inventory of Existing Outdoor Classroom Materials

This stage may be undertaken by middle level students with adult help but is recommended basically for secondary level students and before undertaking, check school library or otherwise obtain publications such as the Peterson Field Guide Series:

"A Field Guide to Trees and Shrubs"
"A Field Guide to Birds"
"A Field Guide to Mammals"
"A Field Guide to Rocks and Minerals"
"A Field Guide to Wildflowers"
"A Field Guide to Insects"

Community resource specialists might be identified and invited to help identify and determine various classifications. These might include personnel from the following:

1. U. S. Soil Conservation Service
2. Park and Recreation Department
3. City/County/Regional Planning Office
4. Florists
5. Nurseries
6. Biologist, botanist, geologist from College/University staffs
7. Horticulturist, agri-business
8. Local secondary science teacher
9. Professional/Hobbyist in community

If plan sheet provided becomes too cluttered, duplicate additional copies for the various activities.

A. Geological Features

1. On the plan sheet for this section, again outline the site dimensions and locations of building(s), drives, parking lot, sidewalks, and designated play and athletic areas. Then use color coding to designate approximate areas in terms of soil types, elevations and other geological features.

   a) Identify and provide color code key to soil types:

Type	Color Code Key
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

b) Identify and provide code key to site elevations.

Basic elevation description	Plan sheet code key

c) Identify and code key other major geological features such as bedrock exposure, rock outcrops, etc.

Other geological features	Plan sheet code key

2. Trees and shrubs (if possible, designate on plan sheet).

a) List native tree species:

Name	Approximate Age	Number

b) List non-native or nursery type trees:

Name	Approximate Age	Number

c) List varieties of shrubs:

Name	Plan Code Key	Number

3. Forbs and grasses.

a) List species of forbs and code plan sheet locations:

Species	Plan Code Key	Number

b) List grasses (other than planted lawn) and code plan sheet locations:

Species	Plan Code Key

4. Water and wetland areas:

Provide basic description here and locate on plan sheet with appropriate designation:

5. Animals:

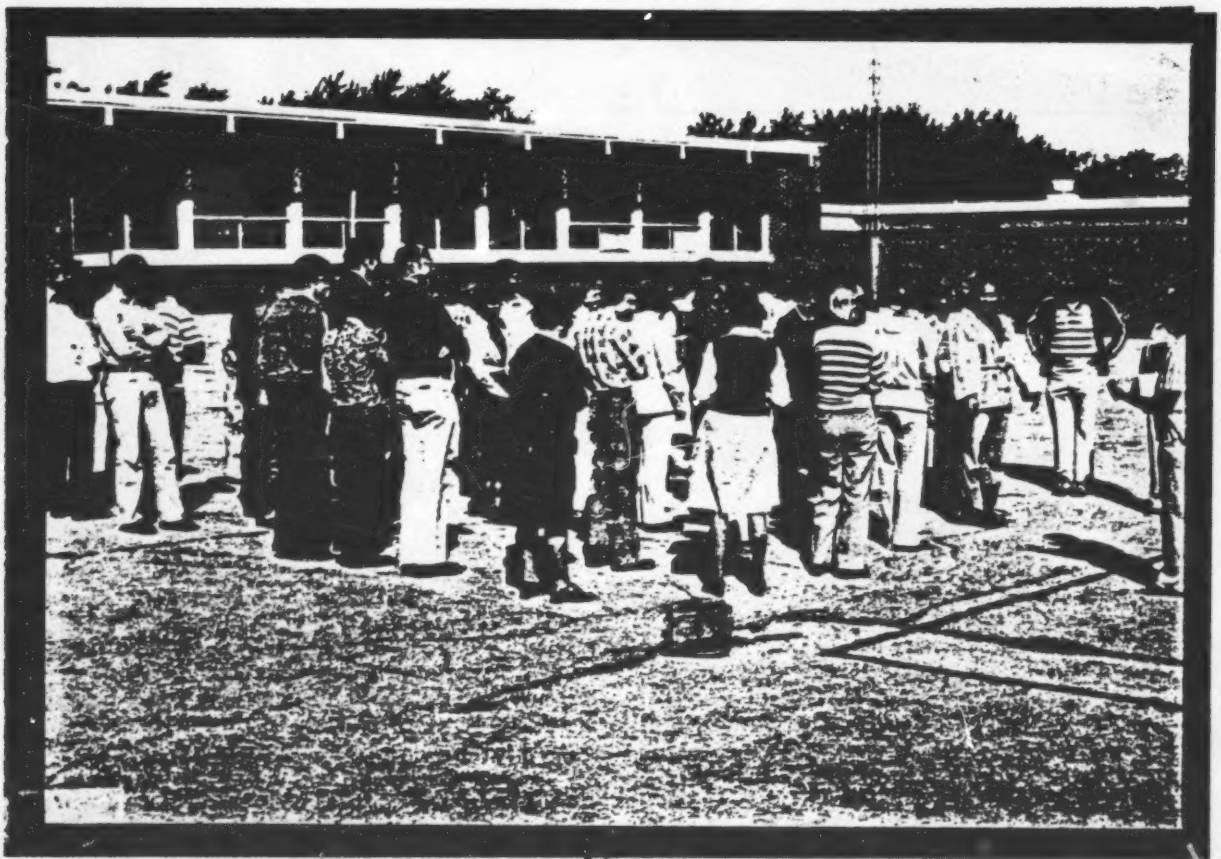
Describe any animal homes located, feeding areas or stations, and other signs of presence:

6. Based on the above inventory, what could be some immediate uses of the site for learning activities?

7. What To Do Next: First, plan to use the existing site and available features as an outdoor classroom. Second, begin planning for better utilization through development as a community project. Recommended reference/resource materials:

Werling, Donn Paul, Environmental Education and Your School Site, Open Lands Project, 53 West Jackson Blvd., Chicago, Illinois, 60604.

Numerous other resources available from I-C-E RMC, 1927 Main Street, Green Bay, WI 54301



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NAME OF SCHOOL SITE: _____ PREPARED BY: _____ DATE: _____